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PHOTOGRAPHIC INTERPRETATION REPORT

CHINESE COMMUNIST AERODYNAMIC RESEARCH AND DEVELOPMENT FACILITIES

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~~TOP SECRET~~

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CHINESE COMMUNIST AERODYNAMIC RESEARCH AND DEVELOPMENT FACILITIES

LIST OF ILLUSTRATIONS

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ABSTRACT

Six installations with facilities for conducting aerodynamic research and development have been identified in Communist China from KEYHOLE photography. The number and type of test facilities contained in these six installations vary considerably, ranging from the large and sophisticated research and development area at the Peking Guided Missile Development and Production Center Changhsintien to the small research and development area (Hsian Aviation Institute) at the Northwest Industrial University, Hsian. The other four installations are at Peking Aviation Institute, Peking Institute of Mechanics, Shenyang Airframe Plant 112, and Nanching Aeronautical Institute.

The six installations are analyzed separately in this report, and each analysis includes a data block, text, line and detailed drawings, photographs, and detailed mensuration* where possible.

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INSTALLATION OR ACTIVITY NAME	COUNTRY
Pei-ching Guided Missile Development and Production Center Chang-hsin-tien	CH

UTM COORDINATES	GEOGRAPHIC COORDINATES
NA	39-48-45N 116-07-54E

25X1

MAP REFERENCE

ACIC. USATC, Series 200, Sheet 0381-01, scale 1:200,000

25X1

	NEGATION DATE (If required)
	NA
REQUIREMENT	NPIC PROJECT
GMAIC 01-70	250523

INTRODUCTION

The research and development area at the Peking Guided Missile Development and Production Center Changhsintien, China is situated immediately southwest of the test stand area. The center itself is located approximately 13 nautical miles (nm) southwest of Peking (Figure 1).

This is the largest and most diversified area for conducting aerodynamic and associated research known to exist in Communist China (Figures 2 and 3). It contains a subsonic, closed circuit continuous-flow wind tunnel, two large test buildings (designated in this report as test buildings 1 and 2), a small test building, a probable high-pressure test station, a large compressor building, a compressed air storage facility, a probable model shop, a fuel storage facility, and a number of small utility and support structures.* A probable masonry wall [redacted] surrounds the entire area. Transportation services include a rail spur and a network of good all-weather roads.

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Photography of June 1959 provided no indication of planned construction in this area; however, all of the major facilities except the closed circuit wind tunnel were in mid- or late-stages of construction when they were initially observed on photography of September 1961. By August 1962, all structures appeared to be externally complete. The closed circuit wind tunnel was constructed between September 1964 and August 1965.

25X1

[redacted]

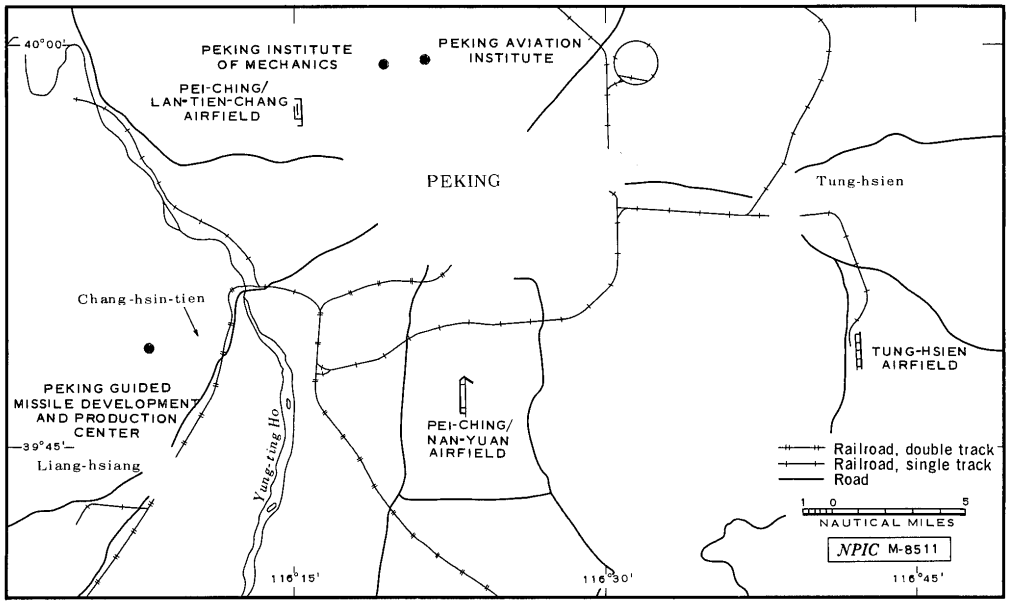

FIGURE 1. LOCATION MAP OF PEKING

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MAJOR FACILITIES

Test Building 1

Test facilities housed in test building 1 (Figure 4) have been added during a period of over four years, from August 1962 to December 1966. Test building 1 presently contains two large probable intermittent blowdown wind tunnels, a small probable intermittent blowdown wind tunnel, a possible altitude test cell for small or low-thrust propulsion systems, and a five-story administration and data reduction section.

One of the large probable intermittent blowdown wind tunnels utilizes a diffuser with a vertical silencer and exhaust stack. This tunnel was present and probably operational as early as August 1962, when the test building was observed to be externally complete. The next addition to test building 1 was the diffuser for the possible altitude test cell, which was added between August and December 1962. The diffuser has a configuration like that of a huge tuning fork. Both diffuser sections (prongs) are slightly tapered and each has a single-stage ejector. The diffuser is also equipped with a cooling system consisting of a small valve/pumphouse and a series of six water pipelines mounted over and spanning the width of both diffuser sections. The diffuser for the small probable intermittent blowdown wind tunnel was first seen on photography of March 1964. The poor interpretability of photography prior to that date precluded an earlier identification. The diffuser is slightly tapered and probably also has a single-stage ejector. The other large probable intermittent blowdown wind tunnel was the last addition to test building 1. It was assembled between August 1965 and December 1966. The tunnel employs a large tapered diffuser that is equipped with a probable two-stage ejection system.

Test Building 2

The exact number or type of test facilities contained within this test building (Figure 5) is unknown. It appeared to be externally complete by August 1962. Four large horizontal pressure bottles, each approximately 60 feet (18.3 meters) long and 10 feet (3.0 meters) in diameter, are located on the northeast side of the building. The building may also be supplied with air from the large compressor building located directly across the street (Figure 3). There are two vertical stacks on the southwest side of the building which may be exhaust ducts or air dryers. Two large transformers adjacent to the northwest corner of the building supply it with electric power.

Small Test Building

The small test building (Figure 4) is located immediately north of test building 1. It contains a small probable intermittent blowdown wind tunnel and a small two-story administration and data reduction section. The small probable blowdown tunnel uses a small, slightly tapered diffuser, first seen on photography of March 1964. The poor interpretability of earlier photography prevented its identification prior to that date. It appears that the diffuser will have an ejector; however, supply lines to the ejector are not evident. The small test building is also tied into the header system from the nearby compressed air storage facility.

Probable High-Pressure Test Station

The facility (Figure 4) is identified as a probable high-pressure test station primarily because of its close resemblance to the high-pressure test station located at Arnold Engineering Development Center (AEDC), Tullohoma, Tennessee. The test station is located near the small test building at the end of the header which supplies compressed air to the test buildings (Figure 4). The station consists of a control and instrumentation building, a blast pad, and a shed, which covers the test unit. The test unit at AEDC is not under roof. A stilling chamber is not visible at this Chinese facility; however, since the header to which it would be connected is located underground, the chamber would probably also be underground. Construction of this facility was very slow; it was first seen under construction in September 1965 and did not appear to be complete until October 1969.

Closed Circuit Continuous-Flow Wind Tunnel

This is a typical subsonic, closed circuit continuous-flow wind tunnel (Figure 5). Although the tunnel was externally complete by August 1965, it probably did not attain operational status until late 1965 or early 1966. The tunnel is equipped with an air breather/air inlet section, an air exchange section, and a large drive-motor and fan section, indicating that it probably operates at least in the high subsonic range above mach 0.5 (380 mph). The size of the tunnel test section is unknown and has not been postulated in this report. The entrance cone has a width of 20 feet (6.1 meters) where it enters the section containing the test and data reduction operations. The exit cone is approximately 20 feet (6.1 meters) wide at its point of emergence. The wind tunnel is also provided with a small administration section, a model buildup section, and a small utility section.

Cooling Water

Cooling water for use by all the test buildings is supplied from a facility located on the southwest side of the area, near test building 1 (Figure 3). The facility contains two large underground tanks, each approximately 40 feet (12.2 meters) in diameter; a large natural-draft cooling rack; and a pumphouse. Water supply is probably from a deep well located in the same general area.

Compressed Air Storage Facility

Compressed air to drive the test facilities housed by the test buildings is stored in an adjacent compressed air storage facility consisting of 49 horizontal pressure bottles aligned in two rows (Figure 6). 25X1

. The entire facility has a 25X1
storage capacity of approximately 447,615 cubic feet (12,675.0 cubic meters). An underground header system provides air flow from the pressure bottles to the test buildings. Prior to November 1968 both ends of each pressure bottle fed into the header; however, probably due to some pressure or air flow problems, the pipes connecting the outside ends of the pressure bottles to the header were apparently removed between September 1968 and November 1968.

Compressor Building

The compressed air storage facility is connected to a large compressor building (Figure 6) by the same header system which connects it to the test buildings. Six probable vertical air dryers are located along the northeast side of the compressor building. An adjacent five-unit induced-draft cooling tower with a nearby large underground water tank, approximately 70 feet (21.3 meters) in diameter, and a pumphouse provide cooling for air compressors and other components. The relatively large size of the compressor building probably indicates that additional space was incorporated for repair and maintenance of compressors and other equipment from facilities within the research and development area. This space could also contain some test facilities.

Fuel Storage Facility

This type of fuel storage facility (Figure 3) is common to a large variety of installations in both the Soviet Union and Communist China, including aircraft engine plants, airfields, and some airframe plants. The facility consists of a combination pump and valve house facing a semicircular arrangement of 14 underground horizontal fuel tanks. It is rail served and has a fuel offloading terminal which can accommodate four tank cars simultaneously.

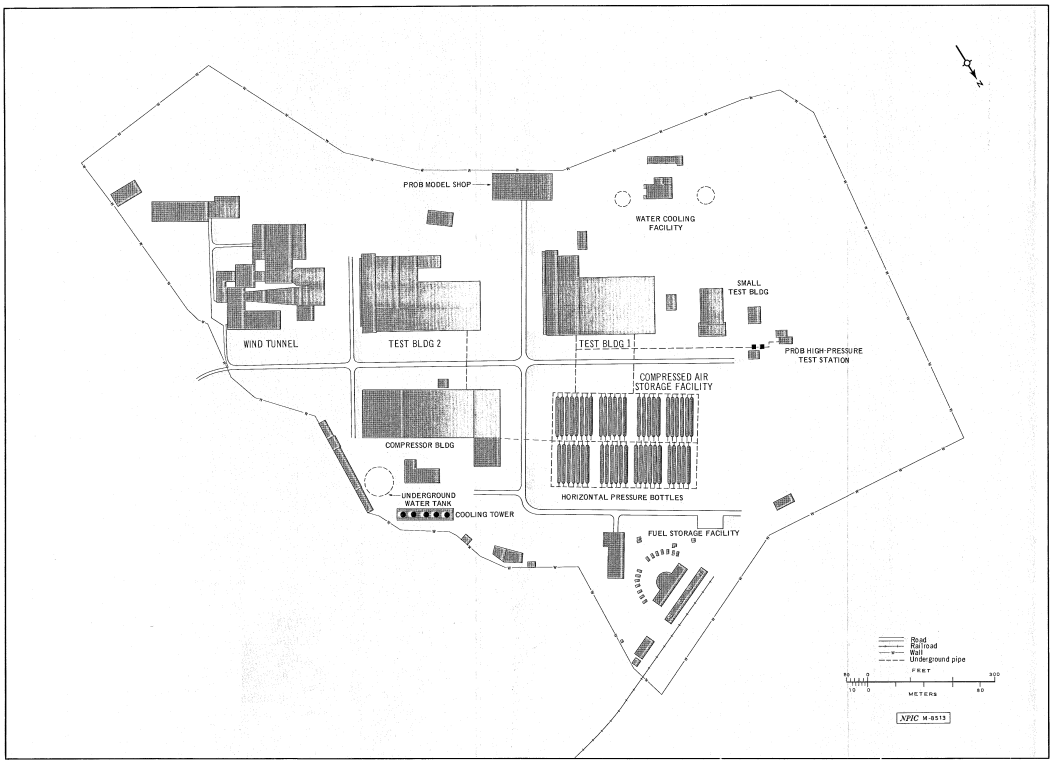
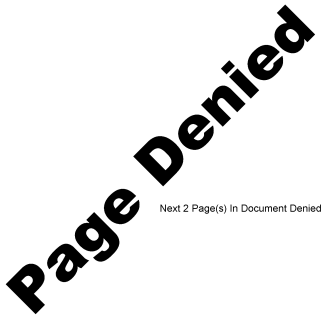


FIGURE 3. LAYOUT OF RESEARCH AND DEVELOPMENT AREA AT PEKING GUIDED MISSILE DEVELOPMENT AND PRODUCTION CENTER



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INSTALLATION OR ACTIVITY NAME		COUNTRY
Pei-ching Aviation Institute		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	
NA	39-59-20N 116-21-00E	

MAP REFERENCE

ACIC. USATC, Series 200, Sheet 0381-01, scale 1:200,000

	NEGATION DATE (If required)
	NA
REQUIREMENT	NPIC PROJECT
GMAIC 01-70	250523

INTRODUCTION

Peking Aviation Institute is located approximately 4 nm northwest of the old walled city, within the university district of Peking (Figure 1). It is the largest and most important aviation institute in Communist China. A large associated research and development area joins the southern boundry of the institute.

The limited interpretability of existing photographic coverage of the aviation institute has prevented an in-depth analysis of the number or types of test facilities contained by its associated research and development area, and the physical limits of the area have also been difficult to establish. This area (Figures 7 and 8) contains 12 major structures plus a large number of small support structures, making it the second largest research and development area of this type in China. Included among the major facilities are a test building, two possible test buildings, a probable compressor building, a large compressed air storage facility, a circular probable test area, a large assembly/shop building, and a steamplant.* The following analysis includes both functional and chronological data on all significant facilities.

MAJOR FACILITIES

Test Facilities

A large test building is located on the west side of the research and development area, and two possible test buildings are situated near the center of the area. All of the test buildings were complete when they were first seen on photography of June 1959.

The large test building (Figure 9) on the west side of the area probably contains a large intermittent blowdown wind tunnel. The tunnel utilizes a large, slightly tapered diffuser which has a single-stage ejector. The diffuser was added to the test building between September 1964 and September 1965. This test building probably houses additional test facilities; however, they cannot be identified on existing photography.

The number or types of test facilities contained by the two possible test buildings cannot be determined. The larger of the two possible test buildings does not appear to have any diffusers, ducting, exhaust ports, or air intakes normally associated with a wind tunnel or test building. The only indication of what types of test facilities are housed by the other possible test building is a large pipe/duct, approximately 6 feet (1.8 meters) in diameter. The pipe/duct passes through and between the test building and small adjacent annex, forming a figure-eight arrangement (Figure 8). The precise function of this large pipe/duct cannot be determined at this time. A probable underground fuel tank nearby may be connected to the test building. It could be a part of a cooling system for a test facility, such as a test cell.

A large circular probable test area, approximately 135 feet (41.1 meters) in diameter, is located on the east side of the research and development area. The area has a natural surface and is probably used for test flying model aircraft.

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Compressed Air Storage Facility

Compressed air to drive the test facilities housed by the test buildings is stored in a large compressed air storage facility (Figure 9) on the west side of the research and development area. It consists of both horizontal pressure bottles and vertical pressure bottles. There are at least 18 horizontal pressure bottles aligned in two rows of nine bottles each. These horizontal bottles could be double stacked, which would double their number. The double stacking of horizontal pressure bottles is a common practice in the Soviet Union and has also been observed in China. There are 36 vertical pressure bottles aligned in three double rows containing 12 bottles each. The reason these pressure bottles are in a vertical position as opposed to a horizontal position is probably to conserve space. The horizontal bottles provide approximately 72,360 cubic feet (2,049.0 cubic meters) of storage space; each bottle measures approximately 40 feet (12.2 meters) long [redacted] 25X1
25X1
[redacted] 25X1
. Air flow from the compressed air storage facility to the test buildings is probably through an underground header system. The exact dates of construction for the compressed air storage facility are not known; however, accomplished some time between June 1959 and September 1963.

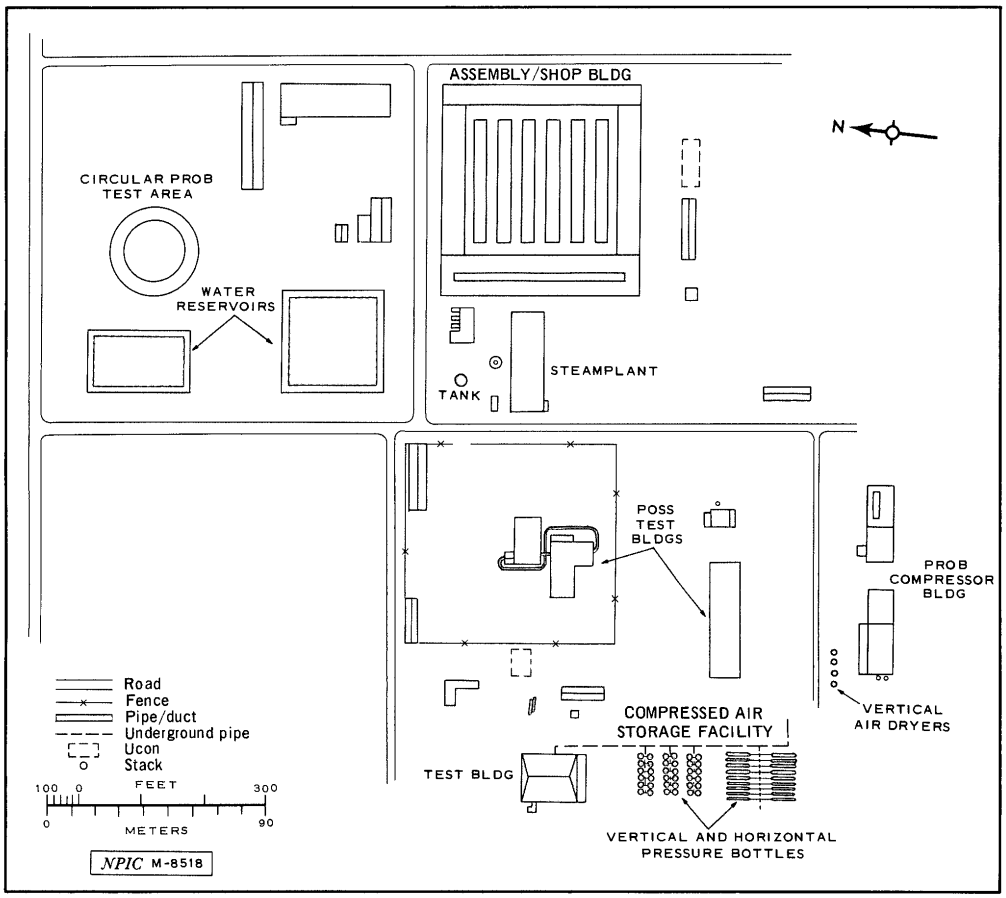

FIGURE 8. LAYOUT OF RESEARCH AND DEVELOPMENT AREA AT PEKING AVIATION INSTITUTE

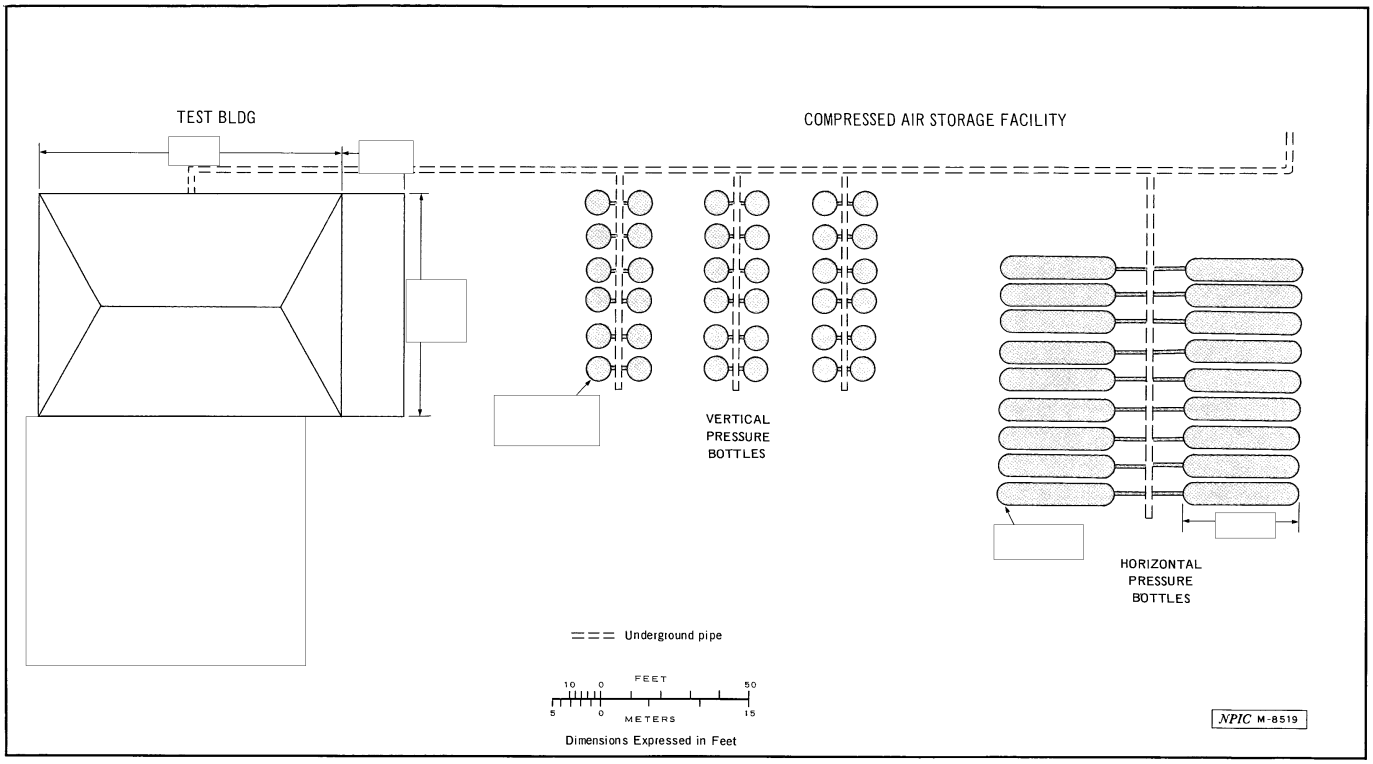

FIGURE 9. PLAN VIEWS OF TEST BUILDING AND COMPRESSED AIR STORAGE FACILITY

Probable Compressor Building

Compressed air for the compressed air storage facility is supplied by a probable compressor building located nearby (Figure 8). The probable compressor building is equipped with four large vertical air dryers and could also house some test facilities in addition to the air compressor. Because of the limited photographic interpretability, the cooling system for the probable compressor building cannot be identified. A cooling system is essential for cooling compressed air which has become heated during the compression process. It is also needed for cooling compressors. Construction of the probable compressor building took place between September 1963 and September 1964.

Large Assembly/Shop Building

This large structure (Figure 8) has overall measurements of approximately 335 feet (102.1 meters) by 315 feet (96.0 meters). It comprises three major sections: a main assembly bay; an assembly/shop section; and an administration and engineering section. The main assembly bay measures approximately 315 feet (96.0 meters) by 65 feet (19.8 meters) and is approximately 30 feet (9.1 meters) high. The assembly/shop section measures approximately 315 feet (96.0 meters) by 240 feet (73.1 meters) and is made up of eight adjoining bays. The administration and engineering section measures approximately 315 feet (96.0 meters) by 35 feet (10.6 meters) and is three stories tall. The building provides a total of approximately 127,575 square feet (11,852.1 square meters) of floorspace which could be used for assembly of prototypes of aircraft or aircraft systems. It could also house additional test facilities. Construction of this building was very slow. It was under construction when first seen in September 1961 and was not observed to be complete until September 1964.

25X1

INSTALLATION OR ACTIVITY NAME		COUNTRY
Pei-ching Institute of Mechanics		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	
NA	39-59-30N 116-20-38E	
MAP REFERENCE		
ACIC. USATC, Series 200, Sheet 0381-01, scale 1:200,000		
	NEGATION DATE (If required)	
	NA	
REQUIREMENT	NPIC PROJECT	
GMAIC 01-70	250523	

25X1

25X1

INTRODUCTION

The Peking Institute of Mechanics is an institute of the National Academy of Sciences, located in the university district in the northwest suburbs of Peking (Figure 1).

The aerodynamic research and development portion of this institute consists of two separate areas, designated as area I and area II.* Area I (Figures 10 and 11) is situated in the eastern section of the large complex of laboratory and institutional-type buildings which make up the National Academy of Sciences. Area II (Figures 13 and 14) is located on the northwest side of this large complex of buildings. The facilities in both of these areas were constructed almost entirely between June 1959 and August 1962.

AREA I

This area is separately secured by a wall. It contains five major structures and ten small support structures (Figure 11). A probable fuels laboratory including seven major structures and four gasholders, two large and two small, is located in an adjacent area. The five major structures are identified as two probable test buildings, a compressor building, a compressed air storage facility, and a large warehouse. The probable test buildings (Figure 12) do not appear to have vents, exhaust outlets, or other ducting normally associated with a wind tunnel or test building. The interpretability of available photography of this installation does not allow for a detailed examination of its facilities.

The compressed air storage facility (Figure 12) consists of three large pressure spheres, . They are positioned between the two probable test buildings, and a single header could provide air flow to both buildings. The three pressure spheres have a volume of approximately 21,481 cubic feet (611.1 cubic meters).

25X1

The compressor building is located near the center of the area. There are five small vertical probable air intake stacks and two vertical probable air dryers along the north side of the compressor building. A cooling system for the compressor building cannot be identified on presently available photography.

AREA II

It is difficult to define the exact limits of this area. The area being considered contains three major structures and 25 small support structures (Figure 14). The major structures are a closed circuit low-speed continuous-flow wind tunnel, a large five-story institutional-type building, and a single-story administration/laboratory building. The low-speed wind tunnel (Figure 15) is very similar to, although smaller than, the low-speed wind tunnel located at Shenyang Airframe Plant 112. The interpretability of existing photography of this area precludes a detailed examination or mensuration of the wind tunnel; however, Figure 15 provides some approximate dimensions.

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INSTALLATION OR ACTIVITY NAME		COUNTRY
Shen-yang Airframe Plant 112		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	
NA	41-52-07N 123-26-01E	
MAP REFERENCE		
PACAF. USATC, Series 200, Sheet 0290-11, scale 1:200,000		
	NEGATION DATE (If required)	
	NA	
REQUIREMENT	NPIC PROJECT	
GMAIC 01-70	250523	

INTRODUCTION

Shenyang Airframe Plant 112 is located approximately 4 nm north of Shenyang, China (Figure 16). The research and development area at Airframe Plant 112 is situated on the north side of the plant. This is the only Chinese research and development area of this type, located within the confines of an aircraft plant.

The research and development area (Figure 17) contains a subsonic, closed circuit continuous-flow wind tunnel and a gas dynamics facility.* These facilities were in the mid-stage of construction when they were first seen on photography of August 1961. The rate of construction for the closed circuit wind tunnel was very slow, and the tunnel apparently did not attain operational status until late 1964. The gas dynamics facility was probably operationally complete by the fall of 1965.

The entire research and development area is surrounded by a wire fence. Transportation services include rail, a network of good all-weather roads, and the adjacent Shen-yang/Pei-ling Airfield

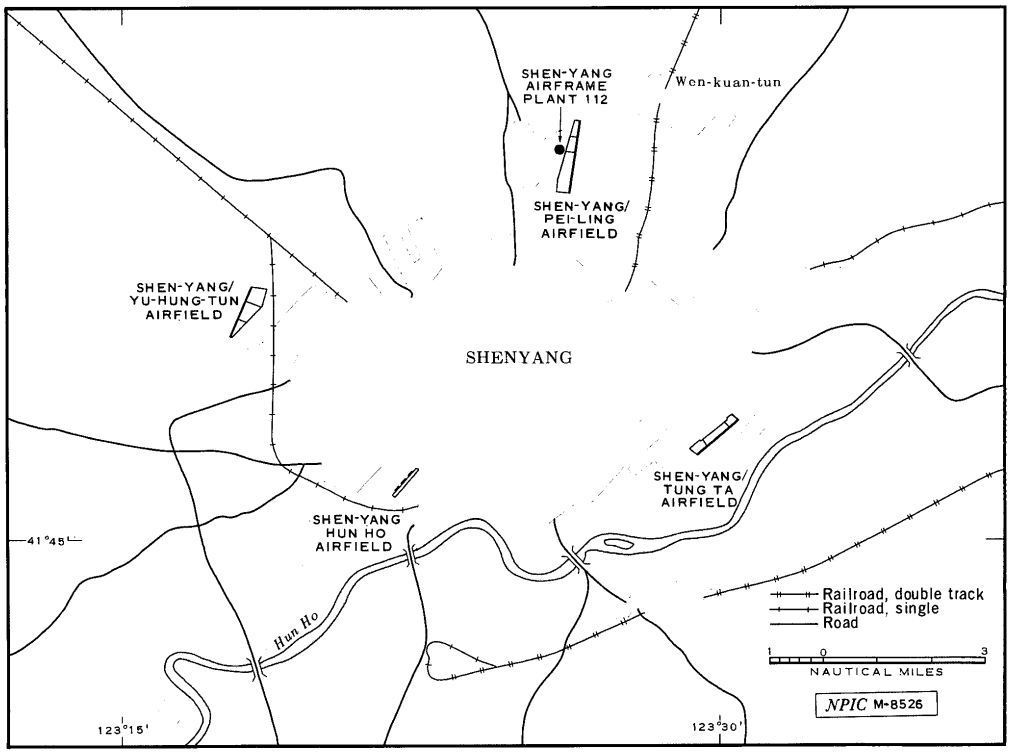

FIGURE 16. LOCATION MAP OF SHENYANG

MAJOR FACILITIES

Closed Circuit Continuous-Flow Wind Tunnel

This is a typical subsonic closed circuit continuous-flow wind tunnel (Figure 18). The absence of an air exchanger or some other type of cooling system plus the small size of the fan-drive section indicate that the tunnel probably operates within the low subsonic range (0 - 380 mph). The size of the tunnel's test section is unknown, and no attempt has been made to determine its size for this report. The entrance cone has a width of approximately 22 feet (6.7 meters) at the point where it enters the section which contains the test and data reduction operations. The exit cone measures approximately 17 feet (5.2 meters) wide at its point of emergence. The three-story section that joins the test and data reduction sections probably contains space for additional data reduction, administration, and a model buildup area.

Gas Dynamics Facility

The gas dynamics facility (Figure 18) was still in a mid-stage of construction when it was observed for the second time on photography of June 1962. The facility at that time consisted of 15 pressures spheres, bases for nine additional pressure spheres, a probable wind tunnel building, and a small combination wind tunnel and compressor building. Construction was at a standstill for a period of almost two years: when construction finally resumed during the summer of 1964, the facility was dismantled, moved several hundred yards north, rebuilt, and significantly enlarged. The small wind tunnel and compressor building was left intact and a new, much larger combination wind tunnel and compressor building was constructed. The old tunnel building probably now serves as a model shop or utility building.

It is difficult to determine the exact number of tunnels or test units housed by the new wind tunnel and compressor building. The identification of four probable exhaust outlets on the south side of the building could indicate the presence of several small tunnels, of which any one or all could have the capability to operate as an intermittent blowdown wind tunnel. Six small probable air intakes and four vertical probable air dryers are located along the north side of the building.

Although the gas dynamics facility presently contains only 15 pressure spheres as opposed to the 24 pressure spheres planned for the original facility, 24 horizontal pressure bottles were added providing increased storage for high pressure air. Each of the spheres has a volume of approximately 6,350 cubic feet (1,798.0 cubic meters). . The air flow to and from the tunnel and compressor building, to the pressure bottles, and to the spheres is through an underground header system. The horizontal pressure bottles are stacked two high and arranged in two rows containing 12 bottles each. Air flow from the pressure bottles on top feeds into the pressure bottles on the bottom which are connected to the underground header system. Cooling for compressors and tunnel components is provided by a three-cell forced-draft cooling tower and an underground water tank, located adjacent to the wind tunnel and compressor building. 25X1

The probable wind tunnel building (Figure 18) is connected to the underground header system leading from the pressure spheres. The structure is relatively large and could contain several blowdown-type wind tunnels. This building could function as a second compressor building; however, this is unlikely since the building has no visible air dryers, air intakes, or cooling system.

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INSTALLATION OR ACTIVITY NAME	COUNTRY
Nan-ching Aeronautical Institute	CH

UTM COORDINATES	GEOGRAPHIC COORDINATES
NA	32-02-10N 118-48-59E

MAP REFERENCE

SAC. USATC, Series 200, Sheet 0386-23, scale 1:200,000

	NEGATION DATE (If required)
	NA
REQUIREMENT	NPIC PROJECT
GMAIC 01-70	250523

INTRODUCTION

Nanching Aeronautical Institute is located in the southern section of Nanching, China, approximately 2 nm from the center of the city (Figure 19). It is situated within the same fenced area as the Nan-ching Army Barracks 5 [redacted] but the exact limits of the institute cannot be firmly established from existing photography.

The area under consideration (Figure 20) contains ten major structures and four small support buildings. The ten major structures include two test buildings (designated as test buildings 1 and 2), a compressor building, a compressed air storage facility, a low-speed wind tunnel, a probable structural test laboratory, a large assembly/shop building, two shop buildings, and an administration building.* The large assembly/shop building, the probable structural test laboratory, and the administration building were present on photography of January 1959. All of the other facilities have been constructed since that date. The most significant facilities are included in the following analysis.

[redacted]

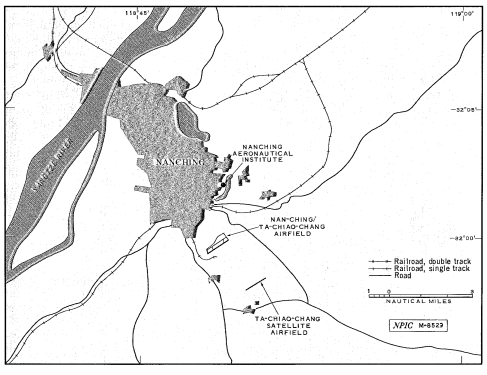

FIGURE 19. LOCATION MAP OF NANCHING

MAJOR FACILITIES

Test Buildings

25X1

Test building 1 (Figure 20) was under construction when it was first seen in March 1962, and it was observed to be complete on photography of August 1964. The building is C-shaped and presently contains at least one probable intermittent blowdown-type wind tunnel in each of its two wings. A large elbowed exhaust duct emerges from the larger of the two building wings. There is no evidence of an air exhaust duct from the other wing of the building. The center section of the test building is probably used for administration and data reduction.

25X1

Test building 2 was nearing completion when it was first seen on March 1962 photography. There are no external signatures which would indicate the number or types of test facilities housed by this test building. It is large enough to house a variety of test facilities. Additional photographic coverage of this building may eventually reveal its function.

Compressed air to drive the test facilities housed by these two test buildings is stored in a nearby compressed air storage facility. It consists of four large pressure spheres approximately 25 feet (7.6 meters) in diameter and two smaller pressure spheres [redacted]. These pressure spheres were in the initial stage of construction when they were first seen in March 1962. Construction was probably completed soon after that date. The pressure spheres provide approximately 34,267 cubic feet (970 cubic meters) of storage space. Air flow to the test buildings is through an aboveground header. Compressed air to the pressure spheres is supplied by an adjacent compressor building. Two pairs of vertical air dryers and a probable air intake stack are located on one side of the compressor building. A nearby cooling pond without spray bars provides the necessary cooling for the compressor building. These facilities were constructed between March 1962 and August 1964.

25X1

25X1

Low-Speed Wind Tunnel

25X1

The low-speed wind tunnel (Figure 20) was first observed on photography of August 1964. It was under construction at that time and little progress has been made since that date. There are a number of pieces of ducting located near the tunnel which may eventually be used as part of the ducting needed to make this tunnel a closed circuit wind tunnel. A small conical fairing also located nearby may eventually be the fairing of the drive motor which will power the tunnel. The measurements for the fairing are shown on Figure 20. This wind tunnel could be used as an open-end low-speed tunnel without any additional construction. [redacted] The size of the test section is unknown and no estimate of its size has been made for this report. The tunnel is attached to a three-story laboratory building which, in addition to housing the test section, probably also houses classrooms and a data reduction section.

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Probable Structural Test Laboratory

This building was present and complete on photography of January 1959, although it may not have been a structural test laboratory at that time. The identification of it as a probable structural test laboratory is based on the large number and variety of aircraft sections located in a small fenced area adjoining the north side of the building.

Large Assembly/Shop Building

This building was also present and complete on January 1959 photography. It has two major sections, an administration/engineering section and an assembly/shop section. The assembly/shop section has two small annexes attached to one end making it an irregular-shaped structure. The administration/engineering section measures approximately 290 feet (88.4 meters) by 25 feet (7.6 meters) and is two stories tall. The assembly/shop section is approximately 275 feet (83.8 meters) by 115 feet (35.0 meters) and is made up of seven adjoining bays. This building contains a total of 49,225 square feet (4,573.2 square meters) of floorspace.

25X1

INSTALLATION OR ACTIVITY NAME	COUNTRY
Hsi-an Aviation Institute	CH
UTM COORDINATES: NA	GEOGRAPHIC COORDINATES: 34-14-40N 108-54-50E
MAP REFERENCE: SAC. USATC, Series 200, Sheet 0384-15, scale 1:200,000	
LATEST IMAGERY USED	NEGATION DATE (If required): NA
REQUIREMENT: GMAIC 01-70	NRC PROJECT: 250523

INTRODUCTION

The Hsian Aviation Institute is a small research and development area located within the northern boundary of the Northwest Industrial University in the southwest section of Hsian, China (Figure 21). It is situated approximately 2 nm from the center of the city near Hsi-an/Hsi-kuan Airfield.

The research and development area contains a testing building, a compressed air storage facility, a circular probable test structure, a small shop building, four small utility buildings, two small buildings under construction, and a small lake or cooling pond (Figures 22 and 23.)* The area is separately secured from the main university campus, and its only access appears to be controlled. Transportation services consist of good all-weather roads and the nearby airfield.

The significant facilities contained by the research and development area are analyzed in the following paragraphs which include functional and chronological data. Other facilities, which include the small shop building and the four small utility buildings, were complete when they were first seen in March 1959. The two small buildings under construction were first observed on photography of September 1963, and little progress has been made since that date.

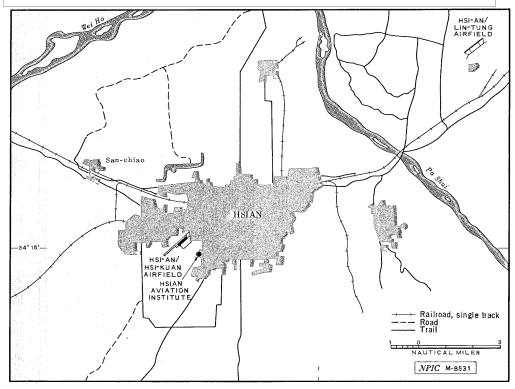

FIGURE 21. LOCATION MAP OF HSIAN

MAJOR FACILITIES

Test Building

The test building is located on the west side of the research and development area. It was first seen on photography of March 1959, at which time it consisted of two small parallel probable utility buildings. There was no apparent change in the status of the two buildings until September 1963 when construction of a small annex began. The annex was completed by October 1964, joining the two small parallel buildings and forming what is now a C-shaped test building (Figure 24). During this time, the adjacent compressed air storage facility was added. The test building and the compressed air storage facility were probably operationally complete when observed on photography of October 1964. The test building probably houses at least one small intermittent blowdown-type wind tunnel in each of its two wings. This is indicated by the arrangement of the compressed air storage facility.

Compressed Air Storage Facility

Compressed air to drive the wind tunnels housed by the test building is stored in the adjacent compressed air storage facility. This facility consists of 36 horizontal and 18 vertical pressure bottles (Figure 24). The horizontal pressure bottles are aligned in three rows, each consisting of 12 bottles stacked two high. They supply high pressure air for use by one wing of the test building. The vertical pressure bottles are in two rows of nine bottles each, and they provide high pressure air to the other wing of the test building.

A compressor building to supply compressed air to the compressed air storage facility has not yet been identified at this installation, possibly because of the limited interpretability of available photographic coverage.

Circular Probable Test Structure

This is the latest structure to be erected in the research and development area. Construction was initiated some time between June 1967 and April 1968. It is difficult at this time to determine the exact function or construction status of this new facility. The probable test structure (Figure 23) consists of a circular wall/barrier, measuring approximately 125 feet (38.1 meters) in diameter. A concrete pad almost circular in shape is located in the center of the enclosed area. It has a maximum diameter of approximately 50 feet (15 meters). Access to the enclosed area is on the south side of the structure. A small probable control building is adjacent to its north side. Additional photographic coverage should eventually reveal the purpose of the structure.

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MAPS OR CHARTS

Peking

ACIC. US Air Target Chart, Series 200, Sheet 0381-01, scale 1:200,000

Shenyang

PACAF. US Air Target Chart, Series 200, Sheet 0290-11, scale 1:200,000

Nanching

SAC. US Air Target Chart, Series 200, Sheet 0386-23, scale 1:200,000

Hsian

SAC. US Air Target Chart, Series 200, Sheet 0384-15, scale 1:200,000

REQUIREMENT

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